PIX/2 DSP
Operation Manual

Advanced DSP Video
Split Screen and Fade Controller

Models

PXD310E / PXD310EN / PXD310EP
PXD310C2 / PXD310C2N / PXD310C2P

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Description

The MicroImage PIX/2 DSP family of controllers is designed to combine the images from two video cameras into one image. The images can be split on the screen showing a portion of each image, or the two images may be mixed or faded together as an overlay.

The images can be split in either the horizontal or vertical direction. The A camera is normally displayed on the left or top and the B camera on the right or bottom. These positions may be interchanged at the touch of a button. The split position can typically be adjusted over 100% of the screen area with the front panel rotary control.

The Fade and Difference modes allow the two images to be added together or subtracted. The mix can be adjusted over the entire range from a full camera A image to a full camera B image.

The PIX/2 DSP family consists of several products to work with a variety of cameras or other video sources, either Black & White or Color. Each unit provides the proper signals and connectors to work correctly with the intended video standard(s).

A new feature was added to serial numbers 10124 and greater that allows the center of each camera image to be viewed in split screen mode.

Original units were designed to work with either NTSC (PXD310EN/PXD310C2N) or PAL (PXD310EP/PXD310C2P). Serial numbers 10140 and up are switchable to either NTSC or PAL in the same unit.

PIX/2 DSP Variations

PXD310E Designed to work with B&W, composite or S-Video input signals. Both inputs may be composite video or S-Video or one input may be composite while the other is S-Video. Both composite and S-Video outputs are provided, regardless of input type. This unit can be set to NTSC or PAL standard. The PXD310E will not provide power to video cameras.

PXD310C2 This unit has all the features of the PXD310E but also provides power for two video cameras. This product has non-standard 8 pin input connectors and requires special cabling for camera connections.

Discontinued products:

PXD310EN **This unit has been superceded by the PXD310E.** Designed to work with B&W RS-170 or NTSC standard color cameras producing either composite or S-Video. The PXD310EN can be set to accept either a B&W, color composite, or S-Video signal on either the A or B inputs, and will produce both composite and S-Video outputs. This PIX/2 DSP model will not power the cameras.

PXD310EP **This unit has been superceded by the PXD310E.** Same as PXD310EN, except designed to work with PAL standard cameras.

PXD310C2N **This unit has been superceded by the PXD310C2.** Designed to work with two NTSC color cameras. This PIX/2 DSP model provides power and all video connections to each camera through a single cable.

PXD310C2P **This unit has been superceded by the PXD310C2.** Same as PXD310C2, except designed to work with PAL standard cameras.

Board Level and OEM PIX/2 DSP products are also available. Please contact your dealer or MicroImage Video Systems for additional information.

Unpacking

The PIX/2 DSP package includes the following items:

PXD310E or PXD310C2 PIX/2 DSP control unit
DTS120150-P5 Universal Power Module
This operation manual

Please inspect all items carefully and report damaged or missing items to your dealer or MicroImage Video Systems immediately.

Initial Setup

Before the unit can be used, it must be set up for the proper video standard and input signal selections. These two functions (and the center split mode enable) are set with four DIP switches located on the rear of the unit. Each switch is numbered and OFF is in the UP position while ON is in the DOWN position. The following sections describe how to set these switches properly.

Signal Standard Selection

The PIX/2 DSP products MUST be set to the proper video standard to work correctly. The choices are NTSC (RS170/60Hz) or PAL (CCIR/50Hz). NTSC is the common video standard for North America while PAL is common in Europe and other parts of the world. The factory default setting is NTSC (DIP switch number 1 off).

To set the unit for PAL operation, place the DIP switch in the LOWER (ON) position. The RAISED (OFF) position is for NTSC standard.

The unit must be set to the same standard as the video sources (cameras, VCRs, etc) and the monitor.

NOTE: This switch only functions on serial numbers 10140 and later. Previous units with lower serial numbers are "hard

programmed" with the video standard. To find the proper video standard for those units, look at the last digit of the model number, it should be either N for NTSC or P for PAL.

Input Signal Selection

Setting the PIX/2 DSP to accept the proper input signal is important for proper operation. A set of DIP switches on the rear panel is used to select either a composite video signal or an S-Video signal for each input.

Switch 4 should be in the RAISED position (OFF) for either a B&W or color composite signal (BNC connector) on Input A. This switch should be set to the LOWER (ON) position for an S-Video signal on the Input A mini-DIN connector.

Switch 3 should be in the RAISED position (OFF) for either a B&W or color composite signal (BNC connector) on Input B. This switch should be set to the LOWER (ON) position for an S-Video signal on the Input B mini-DIN connector.

Camera Center Split Mode

Units with a serial number of 10124 and above have an additional split mode capability called Camera Center Split Mode. When this mode is enabled via DIP Switch 2, the unit will show the center of each camera image side by side or top/bottom when the split modes are enabled.

When in the Centered Camera Split Modes, the MIX control does not have any effect, the split position is always set to 50% of each camera image.

To use Center Camera Split Mode, place DIP Switch number 2 on the rear panel to the LOWER (ON) position. To return to the standard split modes, place DIP Switch number 2 in the RAISED (OFF) position.

Connections

Power

Plug the small connector on the end of the power module cord into the power input connector on the PIX/2 DSP controller. Plug the power module into an appropriate power receptacle.

Inputs

Connect the video output from camera A to the Cam A input on the PIX/2 DSP controller with either a BNC or an S-Video cable. See 'Input Signal Selection'.

Connect the video output from camera B to the Cam B input on the PIX/2 DSP controller with either a BNC or an S-Video cable.

For PXD310C2 units, a single camera cable is provided for each camera, there are no separate video and camera power connections.

Outputs

Connect a video cable from the PIX/2 DSP to the video monitor or other display or recording device using either the composite Video output BNC connector or the S-Video output mini-DIN connector.

Operation

Once connected properly, the PIX/2 DSP is easy to use. Following is a description of each switch and control. When first testing the PIX/2 DSP, place the MIX control near the center of its range.

Power Pressing the power switch will turn the power on or off. The green indicator next to the power switch will light to indicate power is on.

Cam A Pressing the Cam A switch will change the display to show 100% of the camera A image. A Red indicator to the right of the switch will indicate this mode is selected.

Cam B Pressing the Cam B switch will change the display to show 100% of the camera B image. A Red indicator to the right of the switch will indicate this mode is selected.

H Split Pressing this key will cause the screen to be split, adjusted by the MIX control. Camera A will normally be displayed on the left side and camera B on the right side. A Green indicator to the right of the switch will indicate this mode is selected. Note that the MIX control does not have any effect if the Centered Camera Split Mode is enabled via DIP Switch number 2.

V Split Pressing this key will cause the screen to be split, adjusted by the MIX control. Camera A will normally be displayed on the top and camera B on the bottom. A Green indicator to the right of the switch will indicate this mode is selected. Note that the MIX control does not have any effect if the Centered Camera Split Mode is enabled via DIP Switch number 2.

Fade Pressing this key will cause the camera images to be added together. The MIX control will adjust the amount of each image to be mixed, and can fade completely from camera A to camera B images. A Yellow indicator to the right of the switch will indicate this mode is selected.

Difference Pressing this key will cause the image from camera B to be subtracted from Camera A. The MIX control will allow the images from A and B to be canceled, highlighting any differences. A Red indicator to the right of the switch will indicate this mode is selected.

Freeze Pressing this key will freeze the image from camera B until the button is pressed again or power is removed. A Blue indicator to the right of the switch will indicate this mode is selected.

Exchange Pressing this key will exchange the A and B inputs when the unit is in split screen mode. This will cause the image from camera A to appear on the right or bottom, rather than the top or left as normal. A Green indicator to the right of the switch will indicate this mode is selected.

Mix The MIX rotary control is used to adjust the position of the split or the ratio of the fade. This control has no effect when the Cam A or Cam B switches are pressed.

Note that the MIX control does not have any effect if the unit is set to H split or V Split and the Centered Camera Split Mode is enabled via DIP Switch number 2.

In case of difficulty

If you are experiencing problems with your MicroImage product, you can contact us in one of the following ways:

Mail MicroImage Video Systems
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Specifications

Input levels	
Composite/B&W	1Vpp composite 75 Ω
S-Video	Y(Luminance) 1Vpp 75 Ω, C(Chroma) 286mVpp Burst 75 Ω
Output levels	
Composite Video	1Vpp into 75 Ω
S-Video (Y, C)	1Vpp Y, 286mV C (burst) into 75 Ω
RGBS (optional)	0.714Vpp (RGB), 1.6Vpp (Sync) into 75 Ω
Camera Power	
PXD310E	N/A
PXD310C2	Camera Power +12VDC @ 250mA max. per cam.
Connectors	
Composite	BNC female
S-Video	4 pin mini-DIN female
RGBS (optional)	9 pin D-sub female
Power	2.1mm female coaxial power jack
Split Range	
Horizontal	0 to 53.3uS from start of active video >98% of screen width typical
Vertical	NTSC/RS-170 - 0 to 485 lines, fully variable 100% screen height typical PAL/CCIR - 0 to 586 lines, fully variable in, 100% screen height typical
Fade Range	A:B ratio from 100%/0% to 0%/100%, 256 steps
Difference Range	A:B ratio from 100%/-0% to 0%/-100%, 256 steps
Memory	10 megabit/channel (full frame X1 each input)
Timebase Correction	digital memory, frame aligned
Decoding	9 bit multi-standard digital decoding
Processing	8 bit, 4:2:2, ITU-R601 and ITU-R656 standards
Encoding	Full Digital Modulation
Oversampling	4x (54MHz) output over-sampling
Output DACs	10 bit Digital to Analog converters
Input Filters	3 stage analog anti-aliasing filters
Output Filters	Digital plus 4 stage analog anti-aliasing filters
Horizontal Freq.	
RS-170/NTSC	15.734KHz typical
CCIR/PAL	15.625KHz typical
Vertical Frequency	
RS-170/NTSC	59.94Hz typical
CCIR/PAL	50Hz typical
Bandwidth	6 Mhz typical
Crosstalk	Greater than 48dB
Gain Match A to B	Typically within 1%
Temperature	
Operating	0E - 40E C (32E - 104E F)

Storage	-40E - 60E C (-40E - 140E F)
Humidity	
Operating	10% - 90% (non-condensing)
Storage	5% - 95% (non-condensing)
Power	
Voltage	+10 to +20VDC (+12VDC typical), neg ground
Consumption	230mA typical (2.8W)
Protection	Automatic electronic fuse, internal, self resetting
Size	7.60" x 7.25" x 1.60" (193 x 184 x 40 mm)
Weight	1lb. 9 oz. (709g)

Power Module	
Part Number	DTS120150U/AC-1-P5
Type	Switching power supply, UL, CSA, CE, TUV, DVE approved
Output	12 VDC, 1500mA, Regulated (no minimum load)
Voltage In	100 - 240 VAC, 47 - 63 Hz
Input Cable	Standard IEC-320 3 wire input connector, Standard 6ft. Power cord for US use included
Output Cable	6ft. 2 wire, 2.1mm female coaxial barrel conn.
Consumption	0.4A max
Size	3.9" x 1.9" x 1.4" (99mm x 48mm x 36mm) without cable
Weight	7 oz. (198g)

Manufactured in the USA by MicroImage Video Systems

Warranty

MicroImage Video Systems warrants that each PXD310E or PXD310C2 is free from defects due to faulty materials or improper workmanship for a period of one (1) year. MicroImage Video Systems further warrants that any part which proves defective in materials or workmanship within one (1) year , will be replaced or repaired at no cost to the user. Labor to replace defective parts will be done without charge, provided the equipment is returned to MicroImage Video Systems prepaid, insured and properly packaged. Prior return authorization must be obtained from MicroImage Video Systems.

NOTE

This warranty covers the MicroImage PXD310E or PXD310C2 only.

CONDITIONS

This warranty is void if the warranted part has been altered or subjected to abuse or misuse. Defective parts must be returned to MicroImage Video Systems

SOLE WARRANTY

This Warranty is in lieu of all other warranties expressed or implied including, without limitation, any implied warranty or any implied warranty of fitness for a particular purpose. MicroImage Video Systems shall have the final right to determination as to the existence and cause of any defect and its appropriate adjustment in accordance with the terms of this warranty. In no event shall MicroImage Video Systems be liable for any consequential or collateral damages.

Returns

All returns MUST have an RMA number. Please call, fax or email for an RMA form. The RMA form will have the proper shipping address for returns.

Phone	610-754-6800
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